Why northern pike are bad for the Kenai Peninsula

by Rob Massengill

An invasive northern pike removed from Stormy Lake (Nikiski) in 2011. Pike have since been eradicated there and in many other areas on the Kenai Peninsula to protect native fisheries.

The history of northern pike in Southcentral Alaska is murky, but it goes something like this. Pike are not native to Alaska south and west of the Alaska Range and were likely first introduced to Bulchitna Lake in the Susitna Drainage in the 1950s. Pike are now in more than 100 waterbodies in this Indiana-sized drainage. Pike were first documented on the Kenai Peninsula near Soldotna Creek in the 1970s and have since spread to 23 waterbodies. Pike have traveled down the west side of Cook Inlet where commercial setnetters occasionally catch them. Fortunately, the same hasn't been true for Kenai Peninsula setnetters.

So what's the big deal with having pike on the Kenai Peninsula? Here, pike are considered an invasive species, which can be defined as a non-native species that causes or is likely to cause economic or environmental harm. But pike in their native range in Alaska appear to coexist just fine with salmon and trout in places like Bristol Bay and many big Interior drainages. Intuitively, this doesn't make sense. Bear with me as I explain why invasive pike are a big deal to our local native fish.

Pike are ambush predators—they prefer relatively shallow, weedy and slow water habitat from which they dart out to catch prey. Pike are less efficient ambush predators outside this habitat. Some native fish like juvenile coho salmon and trout often utilize this same habitat making them very susceptible to pike predation. In contrast, deep or fast flowing water serves as a refuge for prey as fewer pike inhabit that niche. Looking at fish survey data from Interior Alaska where native pike are widespread, it is striking how few juvenile salmonids actually coexist with pike in the countless shallow and weedy floodplain lakes common to that region despite connectivity to anadromous rivers.

Southcentral Alaska has a lot of shallow vegetated waterbodies that for millennia were nurseries for juvenile salmonids as these fish evolved in the absence of pike. Think of the canoe routes in the Swanson and Moose River drainages or lakes in the Soldotna Creek and Beaver Creek systems—these provide spectacular habitats for native trout and rearing salmon but also for pike. In contrast, the Kenai Peninsula's glacial rivers and deep sockeye rearing lakes would likely not support large pike populations because suitable pike habitat is sparse. Similarly, the world's largest sockeye fishery in Bristol Bay coexists with native pike because pike habitat is very limited in their rearing areas.

Firsthand I've seen how fisheries can collapse when invasive pike and native fish occupy the same habitat. Northern pike completely eliminated rainbow trout, Dolly Varden, juvenile coho salmon and even threespine sticklebacks from multiple lakes in the Soldotna Creek drainage where water depths rarely exceed 25 feet. Northern pike nearly extirpated arctic char and rainbow trout in Stormy Lake (Nikiski) despite lake depths up to 50 feet. Elsewhere, invasive pike have been implicated in the collapse of valuable salmon runs like the prized king salmon of Alexander Creek that once supported a multi-million dollar fishing lodge industry, and the sockeye of Shell Lake in the Skwentna River drainage.

For the last decade, my job has focused on protecting our native fisheries from pike on the Kenai Peninsula. In most instances, eradicating pike from a waterbody is infeasible with nets alone, so we treat the water with rotenone, a plant-based pesticide, to greatly increase the likelihood of success. We have demonstrated that rotenone can be applied safely and effectively while staying within the rigorous permitting and label requirements.

Following years of pike removal, there are now only eight known Kenai Peninsula waterbodies with pike, all close to one another and often referred to as the Tote Road pike lakes. Fortunately, these lakes which are surrounded mostly by private lands, do not connect to wild salmon or trout waters. So an argument could be made for leaving these pike alone—some anglers enjoy catching them, so why remove them if they don't endanger other fish? The simple reason is those pike are a source for illegal introductions elsewhere. Soon, the Alaska Department of Fish and Game will announce public scoping meetings for the proposed eradication of invasive pike from these lakes next year. This will be an opportunity to learn more about the project and to share your thoughts.

I've overheard conversations that suggest pike are spreading more by natural mechanisms than by people intentionally releasing them. Pike eggs are sticky and are broadcast on standing aquatic vegetation around ice-out each spring. The theory is these eggs could cling to plane floats or animal legs and then fall off in nearby waterbodies and kick-start new populations. Conceivably eagles could drop a live pike into a waterbody too. Any of these unintentional mechanisms are possible but must be rare.

This summer, we confirmed pike in four new lakes on the Kenai Peninsula, some of these certainly the result of deliberate introductions. In fact, identities of individuals suspected of introducing pike were reported. It is a Class A misdemeanor to transport or release live fish in Alaska without a permit. Additionally, civil penalties would seek to recoup the costs to remove introduced pike potentially costing the culprit hundreds of thousands of dollars.

So what typically happens after invasive pike are removed? Generally, the waters are restocked by ADF&G with the wild native fish assemblage historically found there. In some cases that might be just sticklebacks, in others it could include wild juvenile salmon, rainbow trout, Arctic char, Dolly Varden or sculpins. In lakes previously stocked with hatchery fish, stocking resumes.

I frequently receive feedback from residents living on lakes where pike were removed and hear things like "…we see more birds and frogs near the lake and see fish jumping regularly…". These are observations that suggest the ecological balance and biological diversity of these lakes are being restored.

What can you do to help protect our wild fish resources from invasive pike? Probably the most useful thing is to retain and report any pike caught on the Kenai Peninsula unless it came from the known pike waters off Tote Road south of Soldotna. Reports can be made online at http://www.adfg.alaska.gov/index.cfm?adfg=invasive.report or call 1-877-INVASIV.

Finally, appreciate that pike are not inherently bad fish—pike just do what they are meant to do. Pike fishing can be a great year-round experience. However, the cost of having pike on the Kenai Peninsula is that native fish populations suffer and complete loss of some fisheries occur.

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